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SYNOPSIS OF THE UNITED STATES SPECIES OF THE HYMENOPTEROUS
GENUS *CENTRIS* Fabr. WITH DESCRIPTION OF
A NEW SPECIES FROM TRINIDAD.

BY WILLIAM J. FOX.

This genus of bees is of tropical origin and, north of Mexico, is only found along the extreme southern border of the United States. Of the eleven species herein noted ten are from the region bordering the Rio Grande, and one only is found east of Texas, *C. errans*, from the vicinity of Biscayne Bay, Florida, a species probably introduced from the West Indies. Ten of these eleven species have been first described within the past two years.

The author is indebted to Mrs. A. T. Slosson and Messrs. Cockrell, Ashmead and Griffith for the loan of material, which has been of much assistance.

FEMALES.

1. Abdomen green-black, with reddish maculation, entirely reddish testaceous beneath; (face with pale markings, an inverted T-shaped mark on clypeus; pubescence of thorax above pale fulvous, on sides, beneath, and on head in front pale gray; a stripe of black hairs crossing the vertex), *errans* n. sp.
Abdomen deep black, more or less pubescent, 2
2. Griseous pubescence covering the entire body, that on thorax above and vertex slightly fulvous, while the hair on legs from middle of tibiæ to apex of two hind pairs and anterior tarsi, black; abdomen pruinose; labrum in perfect specimens densely pilose; a triangular yellow spot on clypeus; antennæ entirely black, the first joint of flagellum distinctly longer than the united length of four following joints, *pallida* n. sp.
Abdomen, at most, with pale pubescence on first and second dorsal segment, generally quite nude, 3
3. Only the first dorsal segment pubescent, 4
“The second abdominal segment, as well as the first, delicately pruinose,”

Hoffmannseggiae Ckll. (= *lanosa* Ckll. ♀ non Cress.)

4. First dorsal segment not densely pubescent; (front broader, if anything, than the distance between the anterior ocellus and apex of clypeus; the latter as well as the labrum, mandibles except apex, and inner orbits narrowly beneath, orange; legs black, with black pubescence), *cesalpinia* Ckll.

First dorsal segment more or less densely pubescent, 5

5. Clypeus and labrum pale, 6

Clypeus and labrum black, the former with a carina extending from base almost to apex; mandibles and scape black; (labrum acuminate at tip; first joint of flagellum a little shorter than the united length of the four following joints; pubescence of four hind legs entirely black), *subhyalina* n. sp.

6. Width of front, if anything, greater than the distance between the anterior ocellus and apex of clypeus; greater part of legs red, their pubescence black, except on anterior femora and tibiae; apical margins of dorsal abdominal segments 2 and 3 laterally with pale pubescence; (clypeus, labrum, inner orbits beneath and mandibles, except apex, orange),

rhodopus Ckll.

Width of front less than the distance between the anterior ocellus and apex of clypeus; legs black, or dark brown, 7

7. Width of clypeus anteriorly scarcely greater than its length in the middle; labrum comparatively small, subtriangular, subacuminate at tip; pubescence on thorax beneath pale,

Cockerellii n. n. (= *Hoffmannseggiae* Ckll. ♀.)

Width of clypeus anteriorly greater than its length in the middle; labrum larger, semilunate, its apex broadly and roundly slightly emarginate; pubescence on thorax beneath dark brown or blackish, *atriventris* n. sp.

MALES.

1. Apex of dorsal segments broadly margined with testaceous. . . . 2
Abdomen deep black, margins of segments not at all testaceous, 3
2. First and second segments broadly fasciate with pale reddish-yellow, which color also marks the sides of abdomen; segments 3-5 pale testaceous at apex; pubescence very dense, completely concealing sculpture of thorax. Length 21 mm.,

Morsei Ckll.

All the dorsal segments margined apically with pale testaceous; pubescence sparser, the sculpture of dorsulum and mesopleuræ more or less obvious. Length 16 mm.

marginata n. sp. (or var. of *Morsei*.)

3. Eyes strongly converging above; first joint of flagellum as long as four following united; abdomen pruinose above, especially on first two segments, the others sparsely; clypeus and labrum white, *Hoffmannseggiae* Ckll.

Eyes not or scarcely converging above, 4

4. Front broad, 5

Front narrow, the distance between the anterior ocellus and apex of clypeus much greater than the greatest width of front, 6

5. "Scape wholly dark; mandibles dark reddish brown, with black tips;" legs dark, *cæsalpiniae* Ckll.

Scape beneath and mandibles more or less yellowish; legs reddish; abdomen, at least laterally, with bands of pale hairs at apex of dorsal segments 2-4, *rhodopus* Ckll.

6. Pubescence of thorax beneath dark brown or blackish, that on four hind legs entirely black; first joint of flagellum shorter than the following two united, *atriventris* n. sp.

Pubescence of thorax pale beneath, the medial tibiæ outwardly and base of hind tibiæ externally with pale hairs; first joint of flagellum nearly as long as the three following united,

lanosa Cress.

1. *Centris errans* n. sp.

♀.—Head and thorax black; abdomen green-black, the apical margin of segments 1-4, or 2-4, the remainder and ventral surface entirely, an irregular mark on dorsals 2 and 3 laterally, tegulæ and the legs, reddish-brown, the anterior femora more or less black; scape beneath, sometimes obscurely, base of mandibles, labrum, an inverted T-shaped mark on clypeus, inner orbits as far as insertion of antennæ, whitish yellow; head with pale pubescence, that on cheeks palest, the vertex crossed from eye to eye by a stripe of black hairs; thorax above with pale fulvous pubescence, that on the sides and beneath similar to that of the head in front; fore legs fringed with pale hairs, the short pubescence fulvous; brush of hind legs of a paler fulvous than the pubescence of thorax above; first

hind tarsal joint covered with appressed, fiery-red, or coppery, bristles, oblong, truncate, longer and wider than the hind tibiae; abdomen on first segment anteriorly, ventrally and at apex with some pale hairs, otherwise nude; wings subhyaline, a dark streak in the marginal cell originating at base, and a similar streak extending from the apex of the same cell in the form of an appendiculation. Length 12 mm.

Florida: Biscayne Bay. Two specimens collected by Mrs. A. T. Slosson, who, I believe, has other specimens of the species. *C. errans*, whose origin is undoubtedly tropical, as the present specimens should be considered wanderers from the West Indies, who may or may not have taken up their abode in Florida, is most closely related to *C. apicalis* and *C. insularis* from Saint Bartholomew and St. Domingo respectively, with either of which it may be identical, but from the descriptions of these two species the present one differs in several respects, which may, however, be due to lack of greater detail.

2. *Centris pallida* n. sp.

♀.—Black, densely clothed with grayish white pubescence, that on vertex and thorax above slightly pertaining to fulvous; median and hind legs with black pubescence on tibiae and first tarsal joint; remaining tarsal joints reddish; clypeus with a triangular yellow mark; labrum covered with dense pile, that on base whitish, at apex brownish; mandibles black, with pale pile at base externally; first joint of flagellum slender, almost as long as the five following joints; tegulae testaceous; fore tarsi fringed with pale fuscous hairs, the pubescence of the inner side of first joint brownish; abdomen with the pubescence of dorsal surface short, hoar-frost-like, except on apical half of fifth segment where it is black; ventral segments 2-4 fringed at apex with long white hairs, the fringe of segment 5 being dark brown; the ventral segments medially are supplied with darker dense pubescence, which, when viewed from the side, extends from base of second segment to apex of fourth; sixth segment with brownish pubescence, the pygidium elongate, narrow, reddish at base, with a broad flat fold or swelling running from apex to near base; wings subhyaline. Length 16-17 mm.

Arizona: Phœnix. Five specimens given to me by Dr. H. G. Griffith, by whom they were collected in May, 1898, on the flowers

of the "Palo Verde," *Parkinsonia Torreyana*. Dr. Griffith states the bees were abundant and easily captured, allowing the collecting bottle to be slipped up quite close to them and the stopper then used in such a manner as to knock them into the bottle. This apparent lethargic condition of the specimens is quite unusual for species of *Centris*, as from all accounts they are usually very rapid flyers and easily disturbed, after the manner of Odonata. I can testify from experience as to the alertness of two of the West Indian species, *C. hæmorrhoidalis* and *C. fasciata*. The abdomen is densely pruinose above.

3. *Centris Morsei* Ckll.

Centris Morsei Cockerell, Proc. Acad. Nat. Sci. Phila., 1897, 355, ♂.

New Mexico: Mesilla. Quite distinct by its large size (21 mm.) and the pale reddish-yellow bands on dorsal segments 1 and 2.

4. *Centris marginata* n. sp.

♂.—Black; ventral segments laterally testaceous-yellow, all the dorsals at apex broadly margined with testaceous; flagellum slightly brownish beneath; clypeus, labrum and spot between antennæ at base of clypeus, bright lemon-yellow; mandibles reddish-brown, with black tips; entire insect covered with pale gray pubescence, except the abdomen above, which is quite bare, excepting the extreme base of first segment; the pubescence inclining to fulvous on top of head and thorax, and sufficiently thin on dorsum and mesopleuræ to display the sculpture; front broad; first joint of flagellum about as long as the three following united; legs robust; pubescence of anterior tibiæ and tarsi internally reddish-brown, that on first joint of hind tarsi internally, dark; wings subhyaline, nervures blackish. Length 16 mm.

New Mexico: "Las Cruces (August 23) on flowers of *Cevallia sinuata*." One specimen received from Mr. Cockerell and bearing the label "*C. cæsalpinix* ♂," which name was probably attached to it by error, as it neither agrees with the description of the male of *C. cæsalpinix*, nor is it even closely allied to the female of that species. Its affinities are to *C. Morsei*, from which it does not differ structurally.

5. *Centris cæsalpinix* Ckll.

Centris cæsalpinix Cockerell, Ann. and Mag. N. H., Ser. 6, xix, 394, ♀ ♂, 1897.

New Mexico: Las Cruces. I have not seen the male of this

species, a specimen received from Mr. Cockerell, marked "*C. caesalpiniae* ♂," differing so obviously from the description that I have concluded that it was so labelled by mistake, and have described it as new (see *C. marginatus*).

6. *Centris rhodopus* Ckll.

Centris caesalpiniae var. *rhodopus* Cockerell, *Ibid.*, 395, ♀ ♂, 1897.

New Mexico: Las Cruces. It seems better to regard this as a distinct species from *C. caesalpiniae*; it has well-marked differences. One male, sent by Mr. Cockerell, has the abdominal hair-bands more distinct and regular, and the pubescence of first hind tarsal joint, instead of being entirely dark, is about evenly divided between dark-brown and whitish.

7. *Centris Hoffmannseggiae* Ckll.

Centris Hoffmannseggiae Cockerell, *Ibid.*, 395, ♂ (non ♀), 1897.

Centris lanosa Cockerell (not Cresson). *Ibid.*, 397, ♀ (non ♂), 1897.

New Mexico: Mesilla Valley. To my mind Mr. Cockerell has confused the sexes of *Hoffmannseggiae* and *lanosa*, judging from his descriptions. Cotypes of *Hoffmannseggiae* ♀ differ at once from the described male in their bare abdomen beyond the first segment, the ♂ having the abdomen pubescent on all the segments, especially the two first. Now, the ♀ *lanosa* described by Cockerell, has "the second abdominal segment, as well as the first, delicately pruinose." In the male *lanosa* the first segment only is pruinose.

8. *Centris Cockerellii* n. n.

Centris Hoffmannseggiae Cockerell, *Ibid.*, 395, ♀ (non ♂), 1897.

New Mexico: Mesilla Valley. I propose this name for the species described as the female of *Hoffmannseggiae*, which is apparently distinct from the latter.

9. *Centris atriventris* n. sp.

♀.—Black; head in front and cheeks with grayish pubescence, that on vertex pale fulvous; clypeus yellow, broader than long, strongly punctured but smooth down middle; labrum yellow, semi-lunate, strongly punctured, its apex broadly and roundly slightly emarginate; flagellum testaceous beneath from apex of first joint, the latter distinctly shorter than the four following joints; scape entirely dark; thorax above with pale fulvous pubescence, that on sides slightly paler, beneath the pubescence is black, or blackish-brown; legs reddish-brown, the pubescence of the anterior ones

fuscous brown, with that on tarsi black; on the other legs it is black, except on the medial tibiæ outwardly, where it is rather similar to that of the fore legs; abdomen shining black, the first segment anteriorly with pale pubescence; the apex of first and the second to fourth dorsal segments quite nude; the apex of fifth dorsal fringed with dark hairs; second to fourth ventrals fringed apically and clothed medially with long black hairs; sixth segment with black hairs, the pygidium triangular, with a triangular raised area at base which sends out a carina from its apex which reaches nearly to tip of pygidium; wings subhyaline. Length 12 mm.

♂.—Similar to ♀ in coloration, but with the mandibles within toward the base, the inner orbits as high as insertion of antennæ and a line on scape, yellow; first joint of flagellum not as long as two following united; labrum semicircular, not emarginate; dark pubescence of ventral surface of thorax not so evident as in the ♀. Length 12 mm.

Texas. One female and two male specimens. A female specimen from lower California agrees in coloration with this species, but there is a slight difference in the shape of pygidium. I am not quite certain that it is the same, however, as the first abdominal segment is scarcely pubescent.

10. *Centris lanosa* Cress.

Centris lanosa Cresson, Trans. Am. Ent. Soc., iv, 284, ♂.

Centris lanosa Cockerell, l. c., 397, ♂ (non ♀), 1897.

Texas; New Mexico: Las Cruces. The pale patch at base of hind tibiæ externally is characteristic of this species. The pubescence of femora varies from brown to pale.

11. *Centris subhyalina* n. sp.

♀.—Black, including clypeus and labrum; head in front and on cheeks with grayish pubescence, that on vertex pale fulvous; clypeus strongly punctured, with a raised smooth line down centre, the fore margin narrowly reddish-testaceous; labrum semicircular, strongly punctured, its outer margin narrowly reddish-testaceous; flagellum obscurely testaceous beneath from apex of second joint, the latter a little longer than the following three joints united; scape not pale; thorax with pale fulvous pubescence above extending half way on sides, where it is met by black-brown pubescence which clothes the under surface; pubescence of middle segment and first

segment of abdomen paler; legs dark red, or black, the pubescence of four posteriors entirely black, that of the anteriors brownish; abdomen shining black, the apex of first, and the second to fourth dorsals bare; fifth dorsal as well as the second to fifth ventrals fringed with black hairs; sixth segment with dark-brown pubescence, the pygidium almost as in *atriventris*; wings subhyaline. Length 12 mm.

Texas. Three specimens. This species is apparently quite close to *C. mexicana* Smith, but in that species the wings are described as fuscous. *C. subhyalina* may subsequently prove to be the female of *C. lanosa* Cress.

DESCRIPTION OF A NEW SPECIES OF CENTRIS FROM THE
ISLAND OF TRINIDAD, W. I.

Centris xylocopoides n. sp.

♀.—Deep black, clothed throughout with black pubescence; space between eye and mandible reddish; eyes slightly diverging above; clypeus medially flattened and impunctate, otherwise strongly punctured; labrum strongly punctured, covered with long hairs, acuminate apically; second joint of flagellum about as long as the third, fourth, fifth and half of sixth joints united; a small bare spot on dorsulum medially and at base of scutellum; abdomen above only pubescent on apical segments, beneath on all segments medially and apical margins of segments 4–6; pygidium triangular, somewhat depressed, with a similarly shaped raised area basally; wings black, variegated with brilliant shades of blue, green and purple. Length 28 mm.

Island of Trinidad, West Indies. November, 1892. Two specimens. The immense size and entirely black color remind one of the species of *Xylocopa*.